

Please **AMEND** the claims as follows:

Please **CANCEL** claims 12, 18, 40, 52, and 53.

1. (Currently Amended) In a Mobility Agent supporting Mobile IP, a method of registering a Mobile Node, comprising:

receiving a Mobile IP registration request packet from the Mobile Node indicating that a key to be shared by the Mobile Node and an agent with which the Mobile Node is registering is requested for purposes of registering the Mobile Node with the agent, wherein the agent with which the Mobile Node is registering is a Home Agent that is dynamically assigned to the Mobile Node;

obtaining a key to be shared by the Mobile Node and the agent with which the Mobile Node is registering in response to receiving the Mobile IP registration request packet;

storing the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering; and

sending a Mobile IP registration reply packet to the mobile node including the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, thereby enabling the Mobile Node to register with the agent, wherein the Mobile IP registration reply packet indicates that the Mobile node needs to register with the agent using the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering.

2. (Currently Amended) The Mobility Agent as recited in claim 67, wherein the agent with which the Mobile Node is registering is the Mobility Agent, at least one of the processor or the memory being further adapted for:

creating a registration entry for the Mobile Node in a mobility binding table.

3. (Previously Amended) The Mobility Agent as recited in claim 67, wherein obtaining a key to be shared by the Mobile Node and the agent with which the Mobile Node is registering comprises:

composing a request packet including authentication information associated with the Mobile Node and a key request indicating that a key to be shared by the Mobile Node and the agent with which the Mobile Node is registering is requested;

sending the request packet to a network device adapted for authenticating the Mobile Node; and

receiving a reply packet from the network device in response to the key request, the reply packet including a key to be shared by the Mobile Node and the agent with which the Mobile Node is registering.

4. (Previously Amended) The Mobility Agent as recited in claim 3, wherein the network device is on a home network associated with the Mobile Node and wherein the Mobility Agent is on a foreign network to which the Mobile Node has roamed.

5. (Previously Amended) The Mobility Agent as recited in claim 3, wherein the network device is a AAA server, wherein the request packet including the authentication information and the key request is a RADIUS access request packet, the RADIUS access request packet including an authentication attribute having the authentication information and a key request attribute having the key request.

6. (Previously Amended) The Mobility Agent as recited in claim 3, wherein the network device is an AAA server, wherein the reply packet is a RADIUS access accept packet, the RADIUS access accept packet including the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering.

7. (Previously Amended) The Mobility Agent as recited in claim 67, wherein the Mobility Agent is adapted for functioning as a Foreign Agent and a Home Agent, at least one of the processor or the memory being adapted for:

    sending an agent advertisement indicating that the Mobility Agent is configured for functioning as a Home Agent and a Foreign Agent.

8. (Previously Amended) The Mobility Agent as recited in claim 7, wherein the agent advertisement further indicates an authentication domain associated with the Mobility Agent.

9. (Previously Amended) The Mobility Agent as recited in claim 7, wherein the agent advertisement further indicates that the Mobile Node should obtain an IP address from a DHCP server.

10. (Previously Amended) The Mobility Agent as recited in claim 7, wherein the agent advertisement further indicates that the Mobile Node should obtain an IP address from the agent with which the Mobile Node is registering.

11. (Previously Amended) The Mobility Agent as recited in claim 7, wherein the agent advertisement further indicates that the Mobile Node should obtain an IP address via the Mobility Agent.

12. (Cancelled)

13. (Previously Amended) The Mobility Agent as recited in claim 3, the reply packet including a first key to be provided to the agent with which the Mobile Node is registering and a second key to be provided to the Mobile Node, wherein the first key and the second key are each the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering.

14. (Previously Amended) The Mobility Agent as recited in claim 13, at least one of the processor or the memory being further adapted for:

obtaining the second key to be provided to the Mobile Node from the reply packet;  
and

composing the Mobile IP registration reply packet, the Mobile IP registration reply packet comprising the second key to be provided to the Mobile Node.

15. (Previously Amended) The Mobility Agent as recited in claim 14, wherein the Mobile IP registration reply packet further comprises a hash of the Mobile IP registration reply packet using the first key to be provided to the agent, the hash of the Mobile IP registration reply packet being provided in a first extension to the Mobile IP registration reply packet and the second key being provided in a second extension to the Mobile IP registration reply packet.

16. (Previously Amended) The Mobility Agent as recited in claim 13, wherein the agent is the Mobility Agent, at least one of the processor or the memory being further adapted for:

decrypting the first key to be provided to the agent.

17. (Previously Amended) The Mobility Agent as recited in claim 67, wherein the agent with which the Mobile Node is registering is a Home Agent on a network to which the Mobile Node has roamed.

18. (Cancelled)

19. (Previously Amended) The Mobility Agent as recited in claim 67, wherein the Mobile IP registration request packet indicates that the agent with which the Mobile Node is registering is a Home Agent to be dynamically assigned to the Mobile Node and the Mobile IP registration reply packet identifies the agent with which the Mobile Node is registering.

20. (Previously Amended) The Mobility Agent as recited in claim 19, wherein the Mobile IP registration reply packet further indicates that the agent is to be used by the Mobile Node in subsequent registration requests.

21. (Previously Amended) The Mobility Agent as recited in claim 19, wherein the Mobile IP registration reply packet indicates that the Mobile Node is to obtain the agent from the Mobile IP registration reply packet.

22. (Previously Amended) The Mobility Agent as recited in claim 19, wherein the agent is a Home Agent on a network to which the Mobile Node has roamed.

23. (Previously Amended) The Mobility Agent as recited in claim 19, wherein the Mobile IP registration reply packet indicates that the Mobile Node needs to re-register with the agent with the key.

24. (Previously Amended) The Mobility Agent as recited in claim 23, at least one of the processor or the memory being further adapted for:

receiving a second Mobile IP registration request from the Mobile Node, the second Mobile IP registration request being addressed to the agent with which the Mobile Node is registering;

appending a key reply extension to the second Mobile IP registration request, the key reply extension including the key; and

forwarding the second Mobile IP registration request to the agent with which the Mobile Node is registering.

25. (Previously Amended) The Mobility Agent as recited in claim 24, at least one of the processor or the memory being further adapted for:

receiving a second Mobile IP registration reply from the agent with which the Mobile Node is registering;

removing the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering from storage; and

forwarding the second Mobile IP registration reply to the Mobile Node.

26. (Currently Amended) In a Mobile Node, a method of registering with an agent supporting Mobile IP, comprising:

composing a Mobile IP registration request having a key request extension requesting a key to be shared by the Mobile Node and the agent with which the Mobile Node is registering;

sending the Mobile IP registration request to a Mobility Agent supporting Mobile IP;

receiving a Mobile IP registration reply from the Mobility Agent, the Mobile IP registration reply indicating that the Mobile Node needs to re-register with the agent with which the Mobile Node is registering using the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, wherein the Mobile IP registration reply includes and having a key reply extension including the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, wherein the agent with which the Mobile Node is registering is a Home Agent that is dynamically assigned to the Mobile Node;

obtaining the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering from the key reply extension of the Mobile IP registration reply; and

storing the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, thereby enabling the Mobile Node to subsequently register directly with the agent.

27. (Previously Amended) The Mobile Node as recited in claim 72, wherein the agent with which the Mobile node is registering is the Mobility Agent.

28. (Previously Amended) The Mobile Node as recited in claim 72, at least one of the processor or the memory being further adapted for:

receiving an agent advertisement indicating an authentication domain associated with the Mobility Agent; and

determining whether the authentication domain associated with the Mobility Agent is different from that of the Mobile Node;

wherein composing a Mobile IP registration request having a key request extension is performed when it is determined that the authentication domain associated with the Mobility Agent is different from that of the Mobile Node.

29. (Previously Amended) The Mobile Node as recited in claim 28, wherein the agent advertisement further indicates that the Mobile Node should obtain an IP address from a DHCP server, the method further comprising:

obtaining an IP address from a DHCP server.

30. (Previously Amended) The Mobile Node as recited in claim 28, wherein the agent advertisement further indicates that the Mobile Node should obtain an IP address from the Mobility Agent, at least one of the processor or the memory being further adapted for:

obtaining an IP address from the Mobility Agent.

31. (Previously Amended) The Mobile Node as recited in claim 72, wherein the Mobility Agent is configured for functioning as a Home Agent and a Foreign Agent, at least one of the processor or the memory being further adapted for:

receiving an agent advertisement from the Mobility Agent indicating that the Mobility Agent is configured for functioning as a Home Agent and a Foreign Agent.



32. (Previously Amended) The Mobile Node as recited in claim 72, at least one of the processor or the memory being further adapted for:

sending a subsequent Mobile IP registration request to the agent including a value associated with the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering.

33. (Previously Amended) The Mobile Node as recited in claim 32, wherein the subsequent Mobile IP registration request comprises an authentication extension including a hash value of the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering.

34. (Previously Amended) The Mobile Node as recited in claim 72, the Mobile IP registration reply further comprising an authentication extension, at least one of the processor or the memory being further adapted for:

authenticating the Mobile IP registration reply using the authentication extension and the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, thereby verifying that the Mobile Node and the agent with which the Mobile node is registering both share the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering.

35. (Previously Amended) The Mobile Node as recited in claim 72, wherein the agent with which the Mobile Node is registering is a Home Agent on a network to which the Mobile Node has roamed.

36. (Previously Amended) The Mobile Node as recited in claim 72, wherein the agent with which the Mobile Node is registering is a Home Agent to be dynamically assigned to the Mobile Node.

37. (Currently Amended) In a Mobile Node, a method of registering with an agent supporting Mobile IP, comprising:

composing a first Mobile IP registration request that requests that a Home Agent be dynamically assigned to the Mobile Node;

sending the first Mobile IP registration request to a Mobility Agent supporting Mobile IP; and

receiving a Mobile IP registration reply from the Mobility Agent, the Mobile IP registration reply identifying a Home Agent that has been dynamically assigned to the Mobile Node;

wherein the Mobile IP registration reply further identifies a key to be shared by the Mobile Node and the Home Agent that has been assigned to the Mobile Node, thereby enabling the Mobile Node to subsequently register directly with the Home Agent that has been assigned to the Mobile Node using the key to be shared by the Mobile Node and the Home Agent.

38. (Currently Amended) The ~~Mobile Node~~ method as recited in claim 37, further comprising: 75, at least one of the processor or the memory being further adapted for:

obtaining the key to be shared by the Mobile Node and the Home Agent that has been assigned to the Mobile Node from the Mobile IP registration reply; ~~and~~

composing a second Mobile IP registration request including the key to be shared by the Mobile Node and the Home Agent that has been assigned to the Mobile node; and

sending the ~~a~~ second Mobile IP registration request to the Home Agent that has been assigned to the Mobile Node.

39. (Cancelled)

40. (Cancelled)

41. (Previously Amended) The Mobile Node as recited in claim 75, wherein the first Mobile IP registration request further indicates that a key to be shared by the Mobile Node and the Home Agent be generated.

42. (Original) In network device adapted for performing authentication of a mobile node, a method of authenticating a registration request associated with a Mobile Node, comprising:

receiving a request packet including authentication information associated with the Mobile Node and indicating that a Home Agent is to be assigned to the Mobile node;

authenticating the Mobile Node using the authentication information;

assigning a Home Agent to the Mobile Node, the Home Agent being located on a foreign network that the Mobile Node is visiting; and

sending a reply packet identifying the Home Agent assigned to the Mobile Node.

43. (Original) The method as recited in claim 42, wherein the network device is a AAA server, wherein the request packet is a RADIUS access request packet and wherein the reply packet is a RADIUS access reply packet.

44. (Currently Amended) In a Mobility Agent supporting Mobile IP, a method of registering a Mobile Node, comprising:

receiving a Mobile IP registration request packet from the Mobile Node indicating that a Home Agent with which the Mobile Node is to register is to be assigned to the Mobile Node;

obtaining a Home Agent assignment, the Home Agent assignment identifying the Home Agent with which the Mobile Node is to register; and

sending a Mobile IP registration reply packet to the Mobile Node identifying the Home Agent with which the Mobile Node is to register and including a key to be shared by the Mobile node and the Home Agent with which the Mobile Node is to register;

wherein the Mobile IP registration reply packet further indicates that the Mobile node needs to register with the Home Agent using the key to be shared by the Mobile Node and the Home Agent with which the Mobile Node is registering.

45. (Previously Amended) The Mobility Agent as recited in claim 79, wherein the Home Agent with which the Mobile Node is registering is the Mobility Agent, at least one of the processor or the memory being further adapted for:

creating a registration entry for the Mobile Node in a mobility binding table.

46. (Previously Amended) The Mobility Agent as recited in claim 79, wherein obtaining a Home Agent assignment comprises:

composing a request packet including authentication information associated with the Mobile Node and indicating that a Home Agent with which the Mobile Node is registering is to be assigned to the Mobile Node

sending the request packet to a network device adapted for authenticating the Mobile Node; and

receiving a reply packet from the network device, the reply packet identifying the Home Agent with which the Mobile Node is registering.

47. (Previously Amended) The Mobility Agent as recited in claim 46, wherein the network device is a AAA server, wherein the request packet is a RADIUS access request packet, the RADIUS access request packet including an authentication attribute having the authentication information and an attribute indicating that a Home Agent is to be assigned to the Mobile Node.

48. (Previously Amended) The Mobility Agent as recited in claim 46, wherein the network device is an AAA server, wherein the reply packet is a RADIUS access accept packet, the RADIUS access accept packet identifying the Home Agent.

49. (Previously Amended) The Mobility Agent as recited in claim 79, wherein the Mobility Agent is adapted for functioning as a Foreign Agent and a Home Agent, at least one of the processor or the memory being further adapted for:

sending an agent advertisement indicating that the Mobility Agent is configured for functioning as a Home Agent and a Foreign Agent.

50. (Previously Amended) The Mobility Agent as recited in claim 49, wherein the agent advertisement further indicates an authentication domain associated with the Mobility Agent.

51. (Previously Amended) The Mobility Agent as recited in claim 49, wherein the agent advertisement further indicates that the Mobile Node should obtain an IP address via the Mobility Agent.

52. (Cancelled)

53. (Cancelled)

54. (Previously Amended) The Mobility Agent as recited in claim ~~79~~ 52, the reply packet including a first key to be provided to the Home Agent with which the Mobile Node is registering and a second key to be provided to the Mobile Node, wherein the first key and the second key are each the key to be shared by the Mobile Node and the Home Agent with which the Mobile Node is registering.

55. (Previously Amended) The Mobility Agent as recited in claim 54, at least one of the processor or the memory being further adapted for:

obtaining the second key to be provided to the Mobile Node from the reply packet;  
and

composing the Mobile IP registration reply packet, the Mobile IP registration reply packet comprising the second key to be provided to the Mobile Node.

56. (Previously Amended) The Mobility Agent as recited in claim 55, wherein the Mobile IP registration reply packet further comprises a hash of the first key to be provided to the agent, the hash of the first key being provided in a first extension to the Mobile IP registration reply packet and the second key being provided in a second extension to the Mobile IP registration reply packet.

57. (Previously Amended) The Mobility Agent as recited in claim 54, wherein the Home Agent is the Mobility Agent, at least one of the processor or the memory being further adapted for:

decrypting the first key to be provided to the Home Agent; and

storing the first key.

58. (Previously Amended) The Mobility Agent as recited in claim 79, wherein the Home Agent with which the Mobile Node is registering is a Home Agent on a network to which the Mobile Node has roamed.

59. (Previously Amended) The Mobility Agent as recited in claim 79, wherein the Mobile IP registration reply packet further indicates that the Home Agent is to be used by the Mobile Node in subsequent Mobile IP registration requests.

60. (Previously Amended) The Mobility Agent as recited in claim 79, wherein the Mobile IP registration reply packet indicates that the Mobile Node is to identify the Home Agent from the Mobile IP registration reply packet.

61. (Previously Amended) The Mobility Agent as recited in claim 52, wherein the Mobile IP registration reply packet indicates that the Mobile Node needs to re-register with the Home Agent with the key.

62. (Previously Amended) The Mobility Agent as recited in claim 61, at least one of the processor or the memory being further adapted for:

receiving a second Mobile IP registration request from the Mobile Node, the second Mobile IP registration request being addressed to the agent with which the Mobile Node is registering;

appending a key reply extension to the second Mobile IP registration request, the key reply extension including the key; and

forwarding the second Mobile IP registration request to the Home Agent with which the Mobile Node is registering.

63. (Previously Amended) The Mobility Agent as recited in claim 62, at least one of the processor or the memory being further adapted for:

receiving a second Mobile IP registration reply from the Home Agent with which the Mobile Node is registering;

removing the key to be shared by the Mobile Node and the Home Agent with which the Mobile Node is registering from storage; and

forwarding the second Mobile IP registration reply to the Mobile Node.

64. (Previously Amended) In a Mobility Agent that supports Mobile IP, a method of registering a Mobile Node, comprising:

receiving a Mobile IP registration request packet, the Mobile IP registration request packet having an extension including a key to be shared by the Mobility Agent and the Mobile Node, the Mobility Agent being a Home Agent on a foreign network to which the Mobile Node has roamed;

obtaining the key from the extension of the Mobile IP registration request packet;

storing the key, thereby enabling the Mobile Node to subsequently register directly with the Mobility Agent;

authenticating the Mobile IP registration request packet using the key;

composing a Mobile IP registration reply packet; and

sending the Mobile IP registration reply packet to the Mobile Node.



65. (Previously Amended) The Mobility Agent as recited in claim 82, at least one of the processor or the memory being further adapted for:

decrypting the key.

66. (Previously Amended) The Mobility Agent as recited in claim 82, wherein the Mobile IP registration request packet indicates that an IP address is requested, at least one of the processor or the memory being further adapted for:

assigning an IP address to the Mobile Node;

wherein the Mobile IP registration reply packet includes the assigned IP address.

67. (Currently Amended) A Mobility Agent supporting Mobile IP, the Mobility Agent being adapted for registering a Mobile Node, comprising:

a processor; and

a memory, at least one of the processor or the memory being adapted for:

receiving a Mobile IP registration request packet from the Mobile Node indicating that a key to be shared by the Mobile Node and an agent with which the Mobile Node is registering is requested for purposes of registering the Mobile Node with the agent, wherein the agent with which the Mobile Node is registering is a Home Agent that is dynamically assigned to the Mobile Node;

obtaining a key to be shared by the Mobile Node and the agent with which the Mobile Node is registering in response to receiving the Mobile IP registration request packet;

storing the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering; and

sending a Mobile IP registration reply packet to the mobile node including the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering,

thereby enabling the Mobile Node to register with the agent, wherein the Mobile IP registration reply packet indicates that the Mobile node needs to register with the agent using the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering.

68. (Currently Amended) A computer-readable medium storing thereon computer readable instructions for registering a Mobile Node in a Mobility Agent supporting Mobile IP, comprising:

instructions for receiving a Mobile IP registration request packet from the Mobile Node indicating that a key to be shared by the Mobile Node and an agent with which the Mobile Node is registering is requested for purposes of registering the Mobile Node with the agent, wherein the agent with which the Mobile Node is registering is a Home Agent that is dynamically assigned to the Mobile Node;

instructions for obtaining a key to be shared by the Mobile Node and the agent with which the Mobile Node is registering in response to receiving the Mobile IP registration request packet;

instructions for storing the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering; and

instructions for sending a Mobile IP registration reply packet to the mobile node including the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, thereby enabling the Mobile Node to register with the agent, wherein the Mobile IP registration reply packet indicates that the Mobile node needs to register with the agent using the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering.

69. (Currently Amended) An apparatus adapted for registering a Mobile Node in a Mobility Agent supporting Mobile IP, comprising:

means for receiving a Mobile IP registration request packet from the Mobile Node indicating that a key to be shared by the Mobile Node and an agent with which the Mobile Node is registering is requested for purposes of registering the Mobile Node with the agent, wherein the agent with which the Mobile Node is registering is a Home Agent that is dynamically assigned to the Mobile Node;

means for obtaining a key to be shared by the Mobile Node and the agent with which the Mobile Node is registering in response to receiving the Mobile IP registration request packet;

means for storing the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering; and

means for sending a Mobile IP registration reply packet to the mobile node including the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, thereby enabling the Mobile Node to register with the agent, wherein the Mobile IP registration reply packet indicates that the Mobile node needs to register with the agent using the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering.

70. (Currently Amended) A computer-readable medium storing thereon computer readable instructions for registering a Mobile Node with an agent supporting Mobile IP, comprising:

instructions for composing a Mobile IP registration request having a key request extension requesting a key to be shared by the Mobile Node and the agent with which the Mobile Node is registering;

instructions for sending the Mobile IP registration request to a Mobility Agent supporting Mobile IP;

instructions for receiving a Mobile IP registration reply from the Mobility Agent, the registration reply indicating that the Mobile Node needs to re-register with the agent with which the Mobile Node is registering using the key to be shared by the Mobile Node and the

agent with which the Mobile Node is registering, wherein the Mobile IP registration reply includes and having a key reply extension including the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, wherein the agent with which the Mobile Node is registering is a Home Agent that is dynamically assigned to the Mobile Node;

instructions for obtaining the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering from the key reply extension of the Mobile IP registration reply; and

instructions for storing the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, thereby enabling the Mobile Node to subsequently register directly with the agent.

71. (Currently Amended) A Mobile Node adapted for registering with an agent supporting Mobile IP, comprising:

means for composing a Mobile IP registration request having a key request extension requesting a key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, wherein the agent with which the Mobile Node is registering is a Home Agent;

means for sending the Mobile IP registration request to a Mobility Agent supporting Mobile IP;

means for receiving a Mobile IP registration reply from the Mobility Agent, the Mobile IP registration reply indicating that the Mobile Node needs to re-register with the agent with which the Mobile Node is registering using the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, wherein the Mobile IP registration reply includes and having a key reply extension including the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, wherein the agent with which the Mobile Node is registering is a Home Agent that is dynamically assigned to the Mobile Node;

means for obtaining the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering from the key reply extension of the Mobile IP registration reply; and

means for storing the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, thereby enabling the Mobile Node to subsequently register directly with the agent.

72. (Currently Amended) A Mobile Node adapted for registering with an agent supporting Mobile IP, comprising:

a processor; and

a memory, at least one of the processor or the memory being adapted for:

composing a Mobile IP registration request having a key request extension requesting a key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, wherein the agent with which the Mobile Node is registering is a Home Agent;

sending the Mobile IP registration request to a Mobility Agent supporting Mobile IP;

receiving a Mobile IP registration reply from the Mobility Agent, the registration reply indicating that the Mobile Node needs to re-register with the agent with which the Mobile Node is registering using the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, wherein the Mobile IP registration reply includes and having a key reply extension including the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, wherein the agent with which the Mobile Node is registering is a Home Agent that is dynamically assigned to the Mobile Node;

obtaining the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering from the key reply extension of the Mobile IP registration reply; and

storing the key to be shared by the Mobile Node and the agent with which the Mobile Node is registering, thereby enabling the Mobile Node to subsequently register directly with the agent.

73. (Currently Amended) A computer-readable medium storing thereon computer-readable instructions for registering a Mobile Node with an agent supporting Mobile IP, comprising:

instructions for composing a first Mobile IP registration request that requests that a Home Agent be dynamically assigned to the Mobile Node;

instructions for sending the first Mobile IP registration request to a Mobility Agent supporting Mobile IP; and

instructions for processing ~~receiving~~ a Mobile IP registration reply received from the Mobility Agent, the registration reply identifying a Home Agent that has been assigned to the Mobile Node;

wherein the Mobile IP registration reply further identifies a key to be shared by the Mobile Node and the Home Agent that has been assigned to the Mobile Node, thereby enabling the Mobile Node to subsequently register directly with the Home Agent that has been assigned to the Mobile Node;

instructions for composing a second Mobile IP registration request using the key to be shared by the Mobile Node and the Home Agent that has been assigned to the Mobile Node;  
and

instructions for sending the second Mobile IP registration request to the Home Agent that has been assigned to the Mobile Node.

74. (Currently Amended) A Mobile Node adapted for registering with an agent supporting Mobile IP, comprising:

means for composing a first Mobile IP registration request that requests that a Home Agent be dynamically assigned to the Mobile Node;

means for sending the first Mobile IP registration request to a Mobility Agent supporting Mobile IP; ~~and~~

means for receiving a Mobile IP registration reply from the Mobility Agent, the registration reply identifying a Home Agent that has been assigned to the Mobile Node;

wherein the Mobile IP registration reply further identifies a key to be shared by the Mobile Node and the Home Agent that has been assigned to the Mobile Node, thereby enabling the Mobile Node to subsequently register directly with the Home Agent that has been assigned to the Mobile Node;

means for composing a second Mobile IP registration request using the key to be shared by the Mobile Node and the Home Agent that has been assigned to the Mobile Node;  
and

means for sending the second Mobile IP registration request to the Home Agent that has been assigned to the Mobile Node.

75. (Currently Amended) A Mobile Node adapted for registering with an agent supporting Mobile IP, comprising:

a processor; and

a memory, at least one of the processor or the memory being adapted for:

composing a first Mobile IP registration request that requests that a Home Agent be dynamically assigned to the Mobile Node;

sending the first Mobile IP registration request to a Mobility Agent supporting Mobile IP; ~~and~~

receiving a Mobile IP registration reply from the Mobility Agent, the Mobile IP registration reply identifying a Home Agent that has been assigned to the Mobile Node;

wherein the Mobile IP registration reply further identifies a key to be shared by the Mobile Node and the Home Agent that has been assigned to the Mobile Node, thereby enabling the Mobile Node to subsequently register directly with the Home Agent that has been assigned to the Mobile Node;

obtaining the key to be shared by the Mobile Node and the Home Agent that has been assigned to the Mobile Node from the Mobile IP registration reply;

composing a second Mobile IP registration request using the key to be shared by the Mobile Node and the Home Agent that has been assigned to the Mobile Node; and

sending the second Mobile IP registration request to the Home Agent that has been assigned to the Mobile Node.

76. (Previously Amended) A network device adapted for authenticating a registration request associated with a Mobile Node, comprising:

a processor; and

a memory, at least one of the processor or the memory being adapted for:

receiving a request packet including authentication information associated with the Mobile Node and indicating that a Home Agent is to be assigned to the Mobile node;

authenticating the Mobile Node using the authentication information;

assigning a Home Agent to the Mobile Node, the Home Agent being located on a foreign network that the Mobile Node is visiting; and

sending a reply packet identifying the Home Agent assigned to the Mobile Node.

77. (Currently Amended) A computer-readable medium storing thereon instructions for registering a Mobile Node by a Mobility Agent supporting Mobile IP, comprising:



instructions for receiving a Mobile IP registration request packet from the Mobile Node indicating that a Home Agent with which the Mobile Node is to register is to be assigned to the Mobile Node;

instructions for obtaining a Home Agent assignment, the Home Agent assignment identifying the Home Agent with which the Mobile Node is to register; and

instructions for sending a Mobile IP registration reply packet to the Mobile Node identifying the Home Agent with which the Mobile Node is to register and including a key to be shared by the Mobile node and the Home Agent with which the Mobile Node is to register;

wherein the Mobile IP registration reply packet further indicates that the Mobile node needs to register with the Home Agent using the key to be shared by the Mobile Node and the Home Agent with which the Mobile Node is registering.

78. (Currently Amended) A Mobility Agent supporting Mobile IP and adapted for registering a Mobile Node, comprising:

means for receiving a Mobile IP registration request packet from the Mobile Node indicating that a Home Agent with which the Mobile Node is to register is to be assigned to the Mobile Node;

means for obtaining a Home Agent assignment, the Home Agent assignment identifying the Home Agent with which the Mobile Node is to register; and

means for sending a Mobile IP registration reply packet to the Mobile Node identifying the Home Agent with which the Mobile Node is to register and including a key to be shared by the Mobile node and the Home Agent with which the Mobile Node is to register;

wherein the Mobile IP registration reply packet further indicates that the Mobile node needs to register with the Home Agent using the key to be shared by the Mobile Node and the Home Agent with which the Mobile Node is registering.

79. (Currently Amended) A Mobility Agent supporting Mobile IP and adapted for registering a Mobile Node, comprising:

a processor; and

a memory, at least one of the processor or the memory being adapted for:

receiving a Mobile IP registration request packet from the Mobile Node indicating that a Home Agent with which the Mobile Node is to register is to be assigned to the Mobile Node;

obtaining a Home Agent assignment, the Home Agent assignment identifying the Home Agent with which the Mobile Node is to register; and

sending a Mobile IP registration reply packet to the Mobile Node identifying the Home Agent with which the Mobile Node is to register and including a key to be shared by the Mobile node and the Home Agent with which the Mobile Node is to register;

wherein the Mobile IP registration reply packet further indicates that the Mobile node needs to register with the Home Agent using the key to be shared by the Mobile Node and the Home Agent with which the Mobile Node is registering.

80. (Previously Amended) A computer-readable medium storing thereon computer-readable instructions for registering a Mobile Node in a Mobility Agent that supports Mobile IP, comprising:

instructions for receiving a Mobile IP registration request packet, the registration request packet having an extension including a key to be shared by the Mobility Agent and the Mobile Node, the Mobility Agent being a Home Agent on a foreign network to which the Mobile Node has roamed;

instructions for obtaining the key from the extension of the Mobile IP registration request packet;

instructions for storing the key, thereby enabling the Mobile Node to subsequently register directly with the Mobility Agent;

instructions for authenticating the Mobile IP registration request packet using the key;  
and

instructions for sending a Mobile IP registration reply packet to the Mobile Node.

81. (Previously Amended) A Mobility Agent that supports Mobile IP and adapted for registering a Mobile Node, comprising:

means for receiving a Mobile IP registration request packet, the registration request packet having an extension including a key to be shared by the Mobility Agent and the Mobile Node, the Mobility Agent being a Home Agent on a foreign network to which the Mobile Node has roamed.;

means for obtaining the key from the extension of the Mobile IP registration request packet;

means for storing the key, thereby enabling the Mobile Node to subsequently register directly with the Mobility Agent;

means for authenticating the Mobile IP registration request packet using the key; and

means for sending a Mobile IP registration reply packet to the Mobile Node.

82. (Previously Amended) A Mobility Agent that supports Mobile IP and adapted for registering a Mobile Node, comprising:

a processor; and

a memory, at least one of the processor or the memory being adapted for:

receiving a Mobile IP registration request packet, the Mobile IP registration request packet having an extension including a key to be shared by the Mobility Agent and the Mobile Node, the Mobility Agent being a Home Agent on a foreign network to which the Mobile Node has roamed.;

obtaining the key from the extension of the Mobile IP registration request packet;

storing the key, thereby enabling the Mobile Node to subsequently register directly with the Mobility Agent;

authenticating the Mobile IP registration request packet using the key;

composing a Mobile IP registration reply packet; and

sending a the Mobile IP registration reply packet to the Mobile Node.